

Abstract of the Disclosure

Elution of a fuel electrode material into a fuel in a direct methanol fuel cell is monitored. The elution arises resulting from elution of a perfluorosulfonic acid polymer in the fuel electrode into the fuel in a high-concentration fuel equal to or more than 2 M or at an operating temperature equal to or more than 80°C. The electrode catalyst elutes into the fuel and the characteristic degrades. Operating conditions of the fuel cell, i.e., the fuel concentration and the operating temperature are limited to be less than 2 M and 80°C or less, respectively. In addition, the elution characteristic is evaluated at the time of manufacture of the fuel cell and quality control is conducted. Further, existence of the elution is detected by a color of the fuel etc., and when the elution is detected, the upper limits of the operating temperature and the fuel concentration are decreased, so that further elution is prevented.